THE INSTITUTE OF PHYSICS

47, BELGRAVE SQUARE, LONDON, S.W.1

BULLETIN

No. 11 *Information in this circular is not intended for general publication: your copy should not therefore be passed to a library.* NOVEMBER 1950

DIARY OF INSTITUTE MEETINGS

Members may bring guests to any of the meetings listed below unless otherwise indicated. Individual notification has been or will be sent to the members of the Branch or Group concerned. Other members of the Institute may obtain further particulars from the Secretary of the Institute.

Tuesday, 14th November (Electronics Group). 5.30 p.m., at the Institute's House, 47 Belgrave Square, S.W.1.
Mr. M. Ryle, "Radio Astronomy."

Wednesday, 15th November (London and Home Counties Branch). 5.30 p.m., at the Institute's House, 47 Belgrave Square, S.W.1.
Mr. J. A. Hall, "Temperature Measurement."

Thursday–Friday, 16th–17th November (X-ray Analysis Group). Conference to be held in the Royal Society of Tropical Medicine and Hygiene.
"The development and application of Fourier Methods in Crystal Structure Analysis."

Friday, 17th November (Manchester and District Branch). 7.0 p.m., at the New Physics Theatre, University of Manchester.
Dr. E. C. Bullard, F.R.S., "The Earth's Magnetic Field."

Tuesday, 21st November (Scottish Branch). 7.0 p.m., at the Natural Philosophy Department, University of Glasgow.
Mr. A. C. Van Dorsten, "The Work of the Philips Organization."

Thursday, 23rd November (Midland Branch). 5.0 p.m., at the University, Birmingham.
Mr. B. O. Payne, A.Inst.P., "Recent Developments in Phase Contrast Microscopy."

Tuesday, 28th November (Scottish Branch). 7.0 p.m., at the Natural Philosophy Department, The University, Glasgow.
Mr. W. J. Lloyd, "The Electron Microscope."

Wednesday, 29th November (Scottish Branch). 7.0. p.m., at the Natural Philosophy Department, The University, Edinburgh.
Mr. W. J. Lloyd, "The Electron Microscope."

Thursday, 30th November (Scottish Branch). 4.30 p.m., at the Natural Philosophy Department, The University, Dundee.
Mr. W. J. Lloyd, "The Electron Microscope."

Friday, 1st December (Scottish Branch). 4.30 p.m., at the Natural Philosophy Department, Marischal College, Aberdeen.
Mr. W. J. Lloyd, "The Electron Microscope."

Saturday, 2nd December (South Wales Branch). 2.0 p.m., at Swansea.
Dr. J. Bronowski, "The Experimental Method outside the Laboratory."

Friday, 8th December (Manchester and District Branch). 7.0 p.m., at the New Physics Theatre, Manchester University.
Sir Charles Ellis, F.R.S., "The Structure of Coal."

Tuesday, 12th December (Scottish Branch). 7.0 p.m., at the Natural Philosophy Department, The University, Glasgow.
Mr. W. D. Oliphant, "Vacuum Physics."

Tuesday, 12th December (Electronics Group). 5.30 p.m., at the Institute's House, 47 Belgrave Square, London, S.W.1.
Dr. T. Kilburn, "Electronic Digital Computors."

Thursday, 14th December (Midland Branch). 5.0 p.m., at The University, Birmingham.
Dr. H. L. Penman, F.Inst.P., "Some Physical Aspects of Plant Growth."

NOTICE TO MEMBERS

Publication of Symposia

The Board has agreed to a recommendation of its Publications Policy Committee that normally symposia arranged by the Institute, its Branches or Groups, shall, in future, appear in one of the Institute's journals instead of in the "Physics in Industry" series. That series of monographs will now be confined to specially commissioned reviews of recent progress in various branches of applied physics.

The symposia will normally be stitched separately from the monthly parts with which they will be issued. No extra charge will be made for them to members of the Institute who regularly receive the journal concerned nor to those non-members who subscribe to the annual volume. Others will be able to buy copies at a price to be fixed in each case.

In view of this decision, the symposia on "Physics of Lubrication" (Manchester and District Branch) and "Vacuum Physics" (Midland Branch) will, with the consent of the Branches, be published in this way instead of in the "Physics in Industry" series as previously stated in this Bulletin. Summaries of both these symposia, intended for the non-specialist reader, are contained in the November issue of the *British Journal of Applied Physics*.

CONTRIBUTIONS FROM MEMBERS

Some Impressions of E.T.H., Zurich

Whenever higher technological education is discussed in this country, sooner or later some contributor extols the excellence of M.I.T. or E.T.H., so that now these abbreviations connote the standard to which Colleges of Technology in this country should attempt to attain. If we are to have technical universities these are models to guide us! I was, therefore, very glad to have the opportunity this summer, of spending a few days in Zurich, of looking round the physics department of the Eidgenössiche Technische Hochschule. I am grateful to Professor P. Scherrer for his permission and to Mr. Kanzig, who was an excellent guide. The visit was short and hurried, and I am well aware that my knowledge is inevitably limited and partial, but I hope that the following comments do not give a distorted picture. They merely record impressions.

Any visitor must be charmed by Zurich itself, with its spacious streets and lovely buildings. E.T.H. and the University, alongside one another, occupy an excellent site on high ground near the centre of the town. This proximity makes easier the measure of co-operation that exists between the two institutions which includes reciprocal arrangements concerning lectures, so that, for example, students of physics in the University can attend lecture-courses in E.T.H. The physics departments are, however, independent and appear to cater for different types of students. The students reading physics in the university usually intend to become teachers, whilst those in the department of mathematics and physics of E.T.H. normally go into industry. There are, of course, exceptions to these generalizations. I am not clear in what ways the courses in physics in the two institutions differ, if they differ at all.

The course for the E.T.H. Diploma extends over five years, each year divided into two semesters; the final year is mainly devoted to a particular problem, which seems not only sound educational practice but serves, for the best students, as an initiation into research methods. Indeed those staying on to do research often continue with the problem tackled in the final year. But the students generally grow up in an atmosphere of research, for there are teams of staff and research students conducting original work much in the same way as in the schools of physics in our universities. The British visitor must feel he is in a university department; perhaps the only comparable institution in this country, judged from the standpoint of physics, is the Imperial College of Science and Technology. Certainly no physics department in any technical college in this country can compare with it. It might be worth noting that the researches are not in the field of what we sometimes call applied physics.

There is no need to comment on the excellent buildings and equipment; it will suffice to say that everything is provided on a scale which must seem lavish to anyone familiar with British austerity. Much of the equipment, made in the departmental workshops, is of fine quality. The large lecture-theatre in which Professor Scherrer lectures to two or three hundred students, has every possible device for demonstration and all the visual aids. Another theatre which will accommodate at least twice as many students is now nearing completion. We, I suspect, have a preference for instruction on a smaller and more intimate scale, but this lecturing to huge numbers (for two hours incidentally!) with emphasis on spectacular demonstrations seems popular. There are, of course, smaller groups, exercise-classes, seminars and colloquia.

Of the curriculum for physics students I can say little, but the mathematical emphasis seemed strong, and it is possible for students to specialize in mathematical physics; Dr. W. Pauli is professor of theoretical physics. The topics of the lecture courses in physics do not seem to be very different from those in our universities, but the absence of applied physics must strike anyone familiar with recent discussions on colleges of technology here. There is, it is true, a department of technical physics, but this has no students either undergraduate, to use our terms, or post-graduate. It is entirely a research department; it is linked with industry and its staff work on problems arising there; the nearest parallel, it would seem, is one of our smaller research associations.

On general educational grounds it is interesting to note that each student must attend each semester at least one of the courses of lectures on subjects outside the range of his special study, such as literature, philosophy, English, political science, history of art. One must also remember that it is said that E.T.H. is the crown of the educational system built on the teaching of Pestalozzi, one of Zurich's famous sons.

There can be no doubt that in any appraisal of technical universities the present form and status of E.T.H. can be invaluable guides, but how much they can contribute to the formulation of schemes for colleges of technology must remain uncertain until we have agreed what we would like these colleges to be. In any case I suspect the history of the growth of E.T.H. from technical-college-like beginnings must have much to teach us.

J. TOPPING.

Scientific research tends to be sectionalised and, in university science especially, much that is of value falls between two Chairs.

G. W. SCOTT BLAIR.

THE REGISTER

ELECTIONS TO MEMBERSHIP

Fellows

An asterisk (*) indicates transfer from Associateship.

*Buist, Jack Mitchell, B.Sc., Senior Physicist, Rubber Service Department, Imperial Chemical Industries Ltd., Manchester.
*Clegg, John Atherton, B.Sc., Ph.D., Lecturer in Physics, Manchester University.
*Cox, Shaun Maturin, M.A., Sc.D., Research and Technical Manager, J. A. Jobling & Co. Ltd., Sunderland.
*Jones, Eric Harding, F.T.I., Senior Research Officer, British Cotton Industry Research Association, Manchester.
*Lord, Mary Patricia, B.Sc., Ph.D., Senior Lecturer in Physics, Chelsea Polytechnic, London.
Roth, George Emanuel, B.Sc., M.Ph., Director, Dominion X-ray and Radium Laboratory, New Zealand.

Associates

An asterisk (*) indicates transfer.

Adams, Norman, B.Sc., Research Student, Manchester University.
Ali, Sultana Zulfiqar, M.Sc., Ph.D., Research Officer, Central Laboratories, Hyderabad.
*Barber, Derek, B.Sc., Scientific Officer, Telecommunications Research Establishment, Malvern, Worcester.
Beeching, Ivan John, B.A., Lecturer in Physics, Loughborough College.
*Bomyer, Patrick, M.Sc., Scientific Officer, Ministry of Supply.
Buckle, Howard, B.Sc., Research Officer, British Cotton Industry Research Association, Manchester.
*Campbell, Robert Kenneth, B.Sc., Research Physicist, Lever Bros. & Unilever Ltd., Port Sunlight.
Chaldecott, John Anthony, M.Sc., Assistant Keeper, Science Museum, South Kensington, London.
*Charnley, Alban, B.Sc., Research Student in Physical Chemistry, Manchester University.
*Charnley, Thomas, B.Sc., Research Student in Physical Chemistry, Manchester University.
*Crompton, Robert Woodhouse, B.Sc., Lecturer in Physics, University of Adelaide, Australia.
*Dobson, Arnold Maurice, B.Sc., Research Physicist, Catalin Ltd., Waltham Abbey, Essex.
*Dolphin, Geoffrey William, B.Sc., Research Student, Reading University.
*Donoghue, John Keith, B.Sc., Junior Research Officer, British Cotton Industry Research Association, Manchester.
*Douglas, Peter Edward, M.Sc., Physicist, Standard Telephones & Cables Ltd., Ilminster, Somerset.
*Elford, William Graham, B.Sc., Lecturer, University of Adelaide, Australia.
*Evans, Cecil Roy, B.Sc., Instrument Manager, General Chemicals Division, Imperial Chemical Industries Ltd., Manchester.
Gamble, Edwin George, B.Sc., Research Student, St. Andrews University.
*Glover, Frank Alan, B.Sc., Research Physicist, National Institute for Research in Dairying, Reading.
Greenwood, Frank Alfred, B.Sc., Head of Physics Laboratory, Textile Machinery Makers (Research) Ltd., Rossendale.
*Hamstead, George William, B.Sc., Optical Designer, W. Watson & Sons Ltd., Herts.
Hanson, Percival Frederick, B.Sc., Lecturer in Physics and Mathematics, Luton Technical College.
Hariharan, P., M.Sc., Junior Scientific Officer, National Physical Laboratory, India.
Herchenroder, Marc Victor Marie, B.Sc., Director, Central Office of Statistics, Mauritius.
*Hookway, Dennis Campbell, B.Sc., Textile Physicist, Dunlop Rubber Co., Nottingham.
*Horsley, Ronald Michael, B.Sc., Research Assistant, Leeds University.
*Howard, Victor Charles, B.Sc., Research Officer, Lace Research Association, Nottingham.
*Jeffery, Peter Macpherson, B.Sc., Lecturer in Physics, University of Western Australia.
*Kay, Edna, B.Sc., Scientific Officer, Royal Aircraft Establishment, Farnborough, Hampshire.
*Lomer, Peter Donald, M.Sc., Scientific Officer, Civil Service.
*Mackay, Alan Lindsay, B.A., B.Sc., Research Student, Birkbeck College, London.
*Mandel, Leonard, B.Sc., Research Student, Birkbeck College, London.
Mussell, Leonard Ernest, B.Sc., Physicist, Hogarth Radiotherapy Centre, General Hospital, Nottingham.
Narain, Hari, M.Sc., Lecturer in Physics, University of Allahabad.
*Nicolls, Andrew Campbell, B.Sc., Temporary Engineer, Post Office Engineering Department, Alder House, London.
*Oliver, Derek James, B.Sc., Research Student, Sheffield University.
Pacey, Derek John, B.Sc., Lecturer in Pure and Applied Physics, Acton Technical College.
*Pashley, Donald William, B.Sc., Ph.D., Demonstrator in Physics, Imperial College of Science and Technology, London.
Robertson, Frederick Albert, B.Sc., Civilian Technical Officer, D.D.M.E. A.A. Command, Kent.
Rolfe, Harding, B.Sc., Senior Physics Master, Stradey Secondary School, Llanelly.
*Scott, Reginald, B.Sc., Scientific Officer, British Ceramic Research Association, Stoke-on-Trent.
Stephenson, Geoffrey, B.Sc., Research Student, Imperial College of Science and Technology, London.
*Sutton, David John, B.Sc., Lecturer in Physics, University of Adelaide, Australia.
*Toye, Trevor Cyril, B.Sc., Scientific Officer, British Iron and Steel Research Association, Swansea.
*Trevena, David Henry, B.Sc., Research Student, University College of Aberystwyth.
*Williams, Gwyn Clement, B.Sc., Research Student, University College of Swansea.
*Williams, John Clark, B.Sc., Research Physicist, J. A. Jobling & Co. Ltd., Sunderland.

Graduates

An asterisk (*) indicates transfer from Studentship.

Addis, Arthur James William, B.Sc., Education Department, Durham University.
Appleby, Douglas Edward, B.Sc., Pilot Officer, Education Branch, R.A.F.
*Arthur, David Foxall, B.Sc., Research Physicist, British Iron and Steel Research Association, Sheffield.
Balchin, John Alan, B.Sc., Physicist, The British Boot, Shoe and Allied Trades Research Association, Northampton.
Bodmer, Arnold Rudolph, B.Sc., Research Student, Manchester University.
*Botterill, John Sidney Martin, B.Sc., Research Student, Birmingham University.
*Brook, Geoffrey, B.Sc., Assistant Lecturer, Leeds University.
Brown, Betty Rosina, B.Sc., Physicist, British Nylon Spinners Co. Ltd., Coventry.
*Buckingham, William Richard, B.Sc., Assistant Experimental Officer, Royal Aircraft Establishment, Farnborough, Hampshire.
*Byatt, Dennis William George, B.Sc., Research Physicist, Marconi's Wireless & Telegraph Co., Chelmsford.
Carrington, Roy Aldous George, B.Sc., Chemist, Shell Marketing & Refining Co. Ltd., Chester.
Carrol, John Murray, B.Sc., Service Engineer, Applied Research Laboratories, California, U.S.A.
Dingle, Allison Margaret, B.Sc., Physical Assistant, Royal Perth Hospital, Australia.
Edwards, William Eric, B.Sc., Senior Physics and Mathematics Master, St. Michael's School, Bryn.
Francis, Reginald Norman, B.Sc., Electronic Engineer Physicist, Sobell Industries Ltd., Glamorgan.
Harris, James Hilary, B.Sc., Junior Physicist, Turner Brothers Asbestos Co. Ltd., Rochdale.
Hart, John, B.Sc., Research Student, Royal Institution, London.
*Herbst, Ludivig Joseph, B.Sc., Physicist, Research Laboratories of the General Electric Co. Ltd., Wembley.
Holden, Charles, B.Sc., Research Physicist, B.S.A. Group Research Centre, Sheffield.

Hooper, Benjamin Charles Francis, B.Sc., Senior Science Master, Enfield Secondary Technical School, Middlesex.
Jackson, Frank John, B.Sc., Assistant Experimental Officer, Government Chemists' Department.
Jones, Brian Ernest, B.Sc., Research Physicist, Tootal Broadhurst Lee Co. Ltd., Manchester.
Kellett, Ernest Arthur, B.Sc., Research Student, Bradford Technical College.
Ledley, Brian Gunming, B.Sc., Research Student, Queensland University, Australia.
McCue, Clarence Gordon, B.Sc., Scientific Officer, Ionospheric Prediction Service, Government of Australia.
Miller, Alexander John, B.Sc., Research Assistant, Twyfords Ltd., Stoke-on-Trent.
Mitchell, Terence Arthur, B.Sc., Scientific Officer, Research Laboratories of the General Electric Co. Ltd., Wembley.
*Mortlock, Allan John, B.Sc., Research Officer, Division of Physics, Commonwealth Scientific and Industrial Research Organization, Australia.
*Ochert, Nathan, B.Sc., Research Assistant, W. Edwards & Co. (London) Ltd.
Peres, Nicholas John Crosbie, B.Sc., Research Officer, Commonwealth Scientific and Industrial Research Organization, Australia.
*Pickering, Albert Noel, B.Sc., Lecturer in Physics and Engineering, Gordon Institute of Technology, Geelong, Australia.
*Posener, Desmond Walter, B.Sc., Research Officer, Division of Electro-technology, Commonwealth Scientific and Industrial Research Organization, Australia.
*Pulford, Arthur Graham, M.Sc., Engineer-Physicist, Amalgamated Wireless Valve Co. Ltd., Sydney, Australia.
Richards, Conway Brian, B.Sc., Student, University College, Cardiff.
Shaw, Robert James, B.Sc., Lecturer in Physics, Melbourne Technical College, Australia.
Waugh, John Blake Steele, B.Sc., Scientific Officer, Defence Research Laboratories, Australia.
Webb, Alan Arthur, B.Sc., Physicist, Research Laboratories, British Thomson-Houston Co. Ltd., Rugby.
Whieldon, Thomas Philip, B.Sc., D.I.C., Physicist, Chance Brothers, Smethwick.
Williams, William Wilfred, B.Sc., Lecturer in Physics, Tunbridge Wells Technical Institute, Kent.
Wootten, Norman Wilfred, B.Sc., Experimental Officer, Anti-Locust Research Centre, British Museum, London (at Porton, Wiltshire).
Young, James George Raynor, B.Sc., Research Student, St. Andrew's University.

Subscribers

Barrett, Lionel Richard, Imperial College, London.
Dixon, Kenneth, W. Jessop & Sons Ltd., Sheffield.
Garner, Raymond Hubert, School of Engineering, Hamilton.
Gawin, Boleslaw Andlley, University College, London.
Schmidt, Raymond, Central Institute for Testing Material, Ryswyk, Holland.

Students

Bell, J. R., Sunderland Technical College.
Dudley, R. S., Woolwich Polytechnic, London.
Everitt, G. E., Woolwich Polytechnic, London.
Godfrey, B. E., Northern Polytechnic, London.
Kirwan, C. B., Royal Technical College, Glasgow.
McAlpine, D., Sunderland Technical College.
Polling, J. J., Brighton Technical College.
Short, A. M., Brighton Technical College.
Steven, L., Salford Technical College.
Wood, R. M., Central Technical College, Birmingham.

DECEASED

Fellow—Professor E. A. Milne.

CHANGE OF NAME

Subscriber—Stanley John Kukulka to Stanley John Kaye.

ADDRESSES WANTED

The present addresses or information concerning the whereabouts of the following are required for the Institute's Register. Their last known locations are given in brackets.

Associates.

Prof. M. C. Bathija (Sindh, India).
A. G. Beverstock (Bristol).
H. M. Churches (London).
W. E. Hunt (Beeston, Nottingham).

Graduate.

B. D. Moore (Darley Abbey, Derby).

Subscribers.

J. T. Caldwell (Melbourne, Australia).
Miss M. McNeill (Glasgow).
R. H. Russell (Bristol).
H. D. Tabakman (Chertsey, Surrey).

Student.

D. W. Hills (Manchester).

APPOINTMENTS VACANT

The inclusion of particulars of a vacancy must not be taken to imply that the Institute necessarily approves of the terms offered or that might be offered. Candidates should satisfy themselves that these are satisfactory, and they may always refer to the Institute for advice.

Kodak Limited have a vacancy for a Physicist in their Research Laboratories. Candidates should have experience in the measurement of the colour of light and be familiar with the use of associated instruments such as spectrophotometers and colorimeters. The salary will be dependent upon age, qualification and degree of experience. Please reply by letter to the Men's Personnel Department.

Physicist (Honours graduate), age 23/30 years, required for investigations of electrical phenomena related to thermoplastic cables for operation at power, telephone and radio frequencies. Some cable experience, particularly R.F., would be an advantage but is not essential. Permanent position with superannuation scheme. Location—Helsby, Cheshire. Salary according to age, experience and qualifications. Applications to Staff Officer, B.I.C.C. Ltd., Prescot, Lancs.

Ministry of Supply (Atomic Energy Division) invites applications from Physicists for a London appointment in the Scientific Officer Class.

Candidates should have a good degree in physics and have had several years research experience in nuclear physics, electronics or an allied subject. Some factory production or managerial experience in addition would be an advantage.

The selected candidate will be offered appointment in the grade of Principal or Senior Scientific Officer according to age, qualifications and experience within the following ranges:—

P.S.O. £1,000–£1,375. S.S.O. £700–£900.

Rates for women somewhat lower. Post carries F.S.S.U. benefits.

Application forms obtainable from Ministry of Labour and National Service, Technical and Scientific Register (k), York House, Kingsway, London, W.C.2, quoting A.285/50A.

Closing date November 24th, 1950.

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